Department of Labor
Pension Simulations (PENSIM) from Government Policies

PENSIM is a dynamic micro-simulation model used to estimate the retirement income implications of government policies which affect employer-sponsored pensions, employer offerings of pensions, and employee behavior with respect to pensions.

PENSIM is a dynamic simulation model that produces life histories for a sample of individuals born in a particular year.

Lead Agency:

Employee Benefits Security Administration (Department of Labor)

Agency Mission:

The Employee Benefits Security Administration (EBSA) of the Department of Labor (DOL) administers and enforces Title I and certain other provisions of the Employee Retirement Income and Security Act of 1974 (EIRSA). ERISA section 513(a) authorizes the Secretary to "undertake research…and in connection therewith to collect, compile, analyze, and publish data, information, and statistics relating to employee benefit plans, including retirement, deferred compensation, and welfare plans, and [other]… plans not subject to this Act."

Principal Investigator:

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Partner Agencies or Organizations:

The Office of Retirement and Disability Policy (Social Security Administration) has sponsored substantial development of SSASIM and GEMINI since 2001 in order to expand the range of Social Security reforms that can be simulated and enable simulated life histories from PENSIM to be used in producing aggregate social security solvency estimates.

General Description:

The U.S. Department of Labor's Employee Benefits Security Administration (EBSA) began supporting the development of PENSIM a dynamic micro-simulation model produced by the Policy Simulation Group (PSG), in September 1997. The model

analyzes lifetime coverage and adequacy issues related to employer-sponsored pension plans in the United States using stimulated life histories of sample cohorts and detailed pension characteristics imputed based on National Compensation Survey establishment data.

The life history for a sample individual includes a variety of life events and their timing: birth, schooling, marriage, divorce, childbirth, immigration, emigration, disability onset and recovery and death. In addition, a simulated life history contains a complete record of jobs held by the individual, including each job's starting and ending date, job characteristics, pension coverage and plan characteristics. The richness of the life history allows the estimation of, for each year of an individual's life, their Social Security taxes and benefits as well as employer-sponsored pension benefits.

The design of PENSIM has been strongly influenced by the policy analysis needs of the EBSA. It has been used to study a number of employer-sponsored issues, particularly the sensitivity of future benefits t government policy, employer offerings, and employee behavior and plan design. Findings from PENSIM have been published in several GAO reports as well as regulations published by the Department of Labor.

PSG began distributing PENSIM free to the public via its website in spring 2007, enabling individual users to conduct analysis of the simulated pension environment and produce research papers. The model is currently being compared to another pension model (Poterba, Rauh, Venti and Wise) to test its validity. Beginning in fall 2008, PSG intends to add defined contribution participant loans and hardship-withdrawals, as well as federal income taxation of pension income to the model, to better reflect current pension issues.

Excellence: What makes this project exceptional?

Significance: How is this research relevant to older persons, populations and/or an aging society?

Effectiveness: What is the impact and/or application of this research to older persons?

Innovativeness: Why is this research exciting or newsworthy?

Employer-sponsored pensions make up the third leg of the "three-legged stool" used to describe the major sources of retirement income, along with Social Security and personal savings. However, because not all employees are covered by pensions throughout their working years, EBSA has become increasingly concerned as to the adequacy of retirement income provided by employer-sponsored pensions for some segments of the population. In order to study this issue and how it is impacted by government policy, EBSA commissioned work on the PENSIM beginning in September 1997.

PENSIM is a smaller-scale model which represents the interaction between employees and employers that determines lifetime pension coverage and adequacy. PENSIM simulates life histories which are rich enough to allow estimation for each year in an

individual's life of pension benefits as well as Social Security taxes and benefits. It is uniquely able to model pension accumulations of American workers across populations and over time, and as a result, had been used by EBSA as well as the Social Security Administration (SSA) and the Government Accountability Office (GAO) on such policy questions as Social Security and pension reform. PENSIM is exceptional precisely because it was designed as a leading rather than a lagging policy research activity that has been able to contribute significantly to high priority, behavioral analysis projects.

PENSIM regularly revises its assumptions with regard to demographics and life events so that the simulated cohorts' life histories closely mimic the actual populations. As such PENSIM captures the "graying" of the workforce, the decline of defined benefit (DB) pensions in favor of defined contribution (DC) plans, changes in the Social Security rules, the delaying of childbearing, increases in divorce as well as other societal and generational shifts. This makes the model and the research it generates relevant not only to current retirees, but also to future retirees.

Because PENSIM is focused on retirement savings over a lifetime, it is able to project the endowment an individual will have at the time of death. Moreover, it is able to measure the impact various policy proposals will have on this endowment. This provides insights into the well-being of older Americans under different economic and political assumptions which can in turn influence which policies are ultimately adopted and enforced by the government.

PENSIM is exciting and newsworthy because it is currently being used to help shape pension legislation which will have far-reaching effects on the retirement adequacy of this and future generations. PENSIM is able to adjust to changes in the pension landscape quickly so that it can project impacts of proposals rather than analyze their effects after the fact. This is essential to insure that those policies ultimately adopted will best serve current and future retirees.